

**Wake Turbulence (AJR/Steve Lang):** The Wake Turbulence Program's focus is safely improving capacity in the NAS. The program is built around three solution sets. The first set is procedural changes only. These changes would be allowed where measured data could be used to build the safety case to simply change air traffic operational procedures, without the need of new meteorological sensors or other technology based solutions. Second will be procedural changes built upon the data that continues to be collected and adding in specific meteorological conditions and simple technology solutions. Third will be the most complex solutions requiring significant meteorological and or technology inputs to achieve the additional capacity.

The Wake Turbulence Program along with the Terminal Services Unit developed and, received regulatory approval of a rule change, to allow simultaneous dependent staggered 1.5nm ILS approaches to runways separated by less than 2500 feet. This rule change was issued to the Air Traffic Organization on November 5<sup>th</sup> as FAA Order 7110.308. There were 5 airports initially approved for the procedure: SEA (34C/L, 16C/R), CLE, STL, PHL, and BOS. This is an example of the simple changes to ATC procedures that are being developed to enhance airport capacity. There are three additional airport runway pairs projected to be added to the current 5 airports in FY09, on track. They are EWR, MEM and SEA (34C/R, 16C/L). Procedure is in use at SEATAC and modifications in progress to allow the procedure to be more user friendly.

The first project being developed in the Second Solution Set is WTMD (Wake Turbulence Mitigation for Departures), another CSPR solution that now incorporates existing meteorological data and a simple technology solution to achieve additional departure capacity at 10 OEP airports. The WTMD project has been transitioned to the organization responsible for implementation. This is the first project to include technology and meteorology in its solution, a more complex solution than solely procedural changes.

The second project being developed in the Second Solution Set is Wake Turbulence Mitigation for Arrivals (WTMA). The Wake Turbulence Program is collecting data and developing the concept definition for WTMA, which is a more general technology based capacity enabling wake solution for CSPR approaches. This effort expands on the procedures-only solutions to include more types of aircraft and the number of CSPRs that can realize increased arrival capacity in less than visual conditions. Additionally this project expands on the technology and meteorological data used by WTMD to address the longer planning horizons and larger airspace with reduced separation that is necessary for the arrival solution.

Additionally the Wake Turbulence program is supporting a R&D project for single runway departures called CREDOS with the European community. CREDOS is a part of the Third Solution Set and involves longer term research and development activities. Also included in this third set is a single runway arrival solution.

The Wake Turbulence Program is also involved in an international effort undertaking a re-categorization of current wake categories. This is a multi-phased effort which is

seeking capacity gains in each phase and has application in all three solution sets. It is projected to have a draft matrix of the new categories by September 2010 which will be delivered to ICAO. This will contribute to a global harmonization of wake categories.

A similar USA only effort underway is an attempt at a re-classification of the B757. There are multiple versions of the B757 in use, with some falling in the heavy weight category and some falling in the B757 category. We have developed a Safety Risk Management Document, also referred to as a safety case, and built upon wake data for B757 approach and departure that has been collected over an extended time and at many locations. The data indicates that no B757 should be heavy as a classification and that all B757's should be in the same category. ATO-Terminal and ATO-System Operations submitted the documentation which has been approved by ATO-Safety and is now in the hands of AOV. AOV accepted the Safety Risk Management Document as approved July 22, 2009. ATO-Terminal is currently working on the Document Change Proposal that will be issued to the field with direction on the handling of the 757.

Finally, a continuing component of the program is involved in the evaluation of new aircraft and determination of the wake separation required prior to entry into service. Additionally the wake program is working with RTCA Working Group, SC-186 and the ADS-B program developing requirements for atmospheric data to be transmitted in ADS-B message set. This data will allow for NextGen Wake solutions to be progressed. These are examples of the more progressively complex solutions the program will be developing, leading towards a future system that utilizes capacity efficient dynamic pair wise aircraft wake separation.